

Reply Under 37 C.F.R. § 1.116 – Expedited Procedure

Serial No.: 09/648,019

Examiner: David C. Payne

REMARKS

Claims 1, 3, 4, 6, 7, 9 and 10 through 15 remain in this application. Claim 16 has been added. Claims 1, 3, 4, 6, 7, 9, 10 and 11 have been amended.

Claim Rejections under 35 U.S.C. Section 103

Claims 1, 3, 4, 6, 7, 9 and 10 through 15 were rejected as being unpatentable under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6504630 to Czarnocha ("the Czarnocha reference") in view of U.S. Patent 5,995,256 to Fee ("the Fee reference") and U.S. Patent No. 6,599,039 to Nakazato ("the Nakazato reference"). However, the references either alone or in combination do not disclose the elements of the claims.

Independent Claim 1 and dependent claim 3

With respect to claim 1, the cited references fail to disclose the requirements, *inter alia*, of, "means connected to each demodulator for an output data channel for sensing the presence of a received valid data signal which includes correct data content; and means for detecting whether a predetermined number of received valid data signals for the multiple output data channels are present at a predetermined number of the multiple demodulators."

In paragraph 2, page 2, the Office Action states that the Czarnocha reference discloses "a means for activating a shutdown input . . . of an optical amplifier . . . if the predetermined number of received valid signals is not detected . . ." However, the Czarnocha reference nowhere discloses shutdown based on whether a predetermined number of received valid data signals are detected at each demodulator for an output data channel. The Czarnocha reference states at column 5, lines 29 through 40:

"According to the principles of the invention, a loss of signal in the information-bearing optical signals (referred hereinafter as "traffic signals") and loss of supervisory signal is detected (step 201 in Fig. 2), in a conventional manner, *at the input of downstream optical amplifier 121 as a result of fiber cut 150 in optical fiber path 130.*"

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It is clear from this description that the Czarnocha reference only detects a loss of signal power of the entire optical signal (traffic and supervisory signal), in a conventional manner, *at the input of downstream optical amplifier* prior to any demultiplexing of the individual traffic signals. As described at Column 3, lines 45 through 49:

“Importantly, the automatic power shut-down procedure according to the principles of the invention is triggered by the detection of both the loss of signal power in the traffic channels (i.e., information -bearing optical signals) and the loss of supervisory signal power.”

Thus, the Czarnocha reference describes detecting loss of signal power of the entire traffic signal at the input side of the optical amplifier or demultiplexer unit by detecting loss of power. This teaches away from the present invention of also separately demodulating the data signals and determining if a predetermined number of the demodulated data signals include correct data content to declare a loss of signal.

The Fee reference fails to add to the teachings of the Czarnocha reference to disclose or suggest the requirements of claim 1, *inter alia*, of, “means connected to each demodulator for an output data channel for sensing the presence of a received valid data signal which includes correct data content; and means for detecting whether a predetermined number of received valid data signals for the multiple output data channels are present at a predetermined number of the multiple demodulators.” The Fee reference nowhere discloses using a loss of signal from a demodulator for shutdown of an optical amplifier or even determining if a predetermined number of multiple demodulators are receiving a valid signal or activating shutdown of an optical amplifier if a predetermined number of valid signals are not detected.

The Nakazato reference also fails to add to the teachings of the Czarnocha reference to disclose or suggest the requirements of claim 1, *inter alia*, of, “means connected to each demodulator for an output data channel for sensing the presence of a received valid data signal which includes correct data content; and means for detecting whether a predetermined number of

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received valid data signals for the multiple output data channels are present at a predetermined number of the multiple demodulators.” The Office Action cites column 27, lines 36 through 41 as disclosing whether a predetermined number of received valid signals are present. However, the Nakazato reference is again only measuring optical power of an optical signal. It is not determining if a valid data signal is present.

The combination of the Czarnocha reference, the Fee reference and the Nakazato reference does not teach or suggest the requirements of the claims either. The Czarnocha reference is measuring the loss of signal power at the input of the optical amplifier in the conventional manner. This detection of loss of signal power in the Czarnocha reference has the disadvantages discussed at page 8, lines 21 through 25 that the reduction in received optical power may not fall below a detector threshold when an EDFA or Raman amplifier is used. The present invention realizes this problem and solves it by detecting whether a predetermined number of received valid data signals are output by a predetermined number of the multiple demodulators, as required by claim 1. The Czarnocha reference does not even realize or address the problem, nevertheless even suggest a solution or in anyway teach the present invention.

Independent Claim 4

With respect to claim 4, the Czarnocha reference, the Fee reference and the Nakazato reference fail to disclose the requirements, *inter alia*, of, “said multiple wavelength receivers including multiple channel receivers for providing data signals to terminal devices, each of said channel receivers including a demodulator to detect and recover a valid received data signal at a correct data rate, and for generating an output signal.” As explained previously, the Czarnocha reference is measuring the loss of signal power at the input of the optical amplifier in the conventional manner and does not even realize or address the problem, nevertheless even suggest a solution or in anyway teach the present invention of determining if a valid data signal with a correct data rate is present at the output of demodulators. Adding the teachings of the Fee reference and the Nakazato reference does not meet the requirements of the claims, because

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neither reference realizes or addresses the problem of the present invention or teach using a loss of a valid data signals from a demodulator for shutdown of an optical amplifier.

Independent Claim 6

With respect to claim 6, the Czarnocha reference, the Fee reference and the Nakazato reference fail to disclose the requirements, *inter alia*, of, "said multiple wavelength receivers including multiple channel receivers for providing data signals to terminal devices, each of said channel receivers including a demodulator to detect and recover a valid received data signal with correct coding, and for generating an output signal." As explained previously, the Czarnocha reference is measuring the loss of signal power at the input of the optical amplifier in the conventional manner and does not even realize or address the problem, nevertheless even suggest a solution or in anyway teach the present invention of determining if a valid data signal with a correct data coding is present at the output of demodulators. Adding the teachings of the Fee reference and the Nakazato reference does not meet the requirements of the claims, because neither reference realizes or addresses the problem of the present invention or teach using a loss of valid data coding in the data signals from a demodulator for shutdown of an optical amplifier.

Independent Claim 7 and dependent claim 9

With respect to claim 10, the Czarnocha reference, the Fee reference and the Nakazato reference fail to disclose the requirements, *inter alia*, of, "sensing at the demodulator the presence of a valid data signal having a correct data format; and detecting whether a predetermined number of valid data signals are present at the demodulators." As explained previously, the Czarnocha reference is measuring the loss of signal power at the input of the optical amplifier in the conventional manner and does not even realize or address the problem, nevertheless even suggest a solution or in anyway teach the present invention of determining if a valid data signal with a correct data format is present at the output of demodulators. Adding the teachings of the Fee reference and the Nakazato reference does not meet the requirements of the claims, because neither reference realizes or addresses the problem of the present invention or

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teach using a loss of a valid data signals from a demodulator for shutdown of an optical amplifier.

Independent Claim 10 and dependent claims 11 through 16

With respect to claim 10, the Czarnocha reference, the Fee reference and the Nakazato reference fail to disclose the requirements, *inter alia*, of, "a plurality of receive wavelength adapters that each receive one of the multiple wavelengths outputted from the demultiplexer, wherein each of the plurality of receive wavelength adapters monitors a data signal of their inputted wavelength and outputs a loss of signal in response to invalid data content." As explained previously, the Czarnocha reference is measuring the loss of signal power at the input of the optical amplifier in the conventional manner and does not even realize or address the problem, nevertheless even suggest a solution or in anyway teach the present invention of determining if a valid data signal with a correct data content is present at the output of demodulators. Adding the teachings of the Fee reference and the Nakazato reference does not meet the requirements of the claims, because neither reference realizes or addresses the problem of the present invention or teach using a loss of valid data content in the data signals from a demodulator for shutdown of an optical amplifier.

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CONCLUSION

For the above reasons, the foregoing amendment places the Application in condition for allowance. Therefore, it is respectfully requested that the amendment to the claims be entered and full allowance granted. Should the Examiner have any further comments or suggestions, please contact Jessica Smith at (972) 477-9109.

Respectfully submitted,

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